

REMARKS

Reconsideration and allowance are respectfully requested in light of the preceding amendments and following remarks. No claims having been cancelled and claims 9-11 having been added by this response, the Applicants respectfully submit that 11 claims, specifically claims 1-11, remain pending and properly under consideration in this application. Of these 11 claims, claims 1, 5 and 7 are the independent claims.

The Applicants note with appreciation that the Examiner grant of a personal interview with the undersigned representative on April 7, 2003.

The Applicants also appreciate the Examiner's confirmation that the November 28, 2002, Declaration Under 37 C.F.R. 1.132 of Mr. Makoto Kato was received and has been inserted into the official prosecution file. With respect to the Examiner's apparent concerns regarding the differences between the compositions addressed in the declaration, the Applicants respectfully submit that the "additional" weight of the organic clay is attributable to the organic component. The Applicants contend, therefore, that the samples are thus "normalized" with respect to the actual quantity of clay and may properly be compared in the manner reflected in the declaration.

Rejections under 35 U.S.C. § 112

Claims 5-8 stand rejected under 35 U.S.C. § 112, first paragraph, as containing new matter. The Applicants respectfully contend that the amendment to claims 5 and 7 reflected above with regard to the tensile modulus is sufficient to conform the scope claim to the present disclosure and overcome this rejection. The Applicants, therefore, respectfully request that this rejection be withdrawn.

Rejections under 35 U.S.C. § 103Based on Abolins

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. No. 4,692,490 to Abolins ("Abolins") in view of U.S. Pat. Nos. 5,707,439 or 5,530,052 to Takekoshi et al. (collectively "Takekoshi"). The Applicants respectfully traverse this rejection for the reasons detailed below.

The Applicants also note that none of the previous rejections applying these references addressed process claims and suggest, therefore, that reliance on "reasons of record" for "maintaining" the rejection of newly presented claims 5-8 is not an appropriate basis for rejecting the process claims under 35 U.S.C. § 103(a). The Applicants respectfully contend that they have been denied an opportunity to consider and address the basis for these rejections until such time as an Office Action is issued that sets forth:

- (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
- (B) the difference or differences in the claim over the applied reference(s),
- (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
- (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification

as outlined in MPEP § 706.02(j). The Applicants respectfully contend, therefore, that the rejections of claims 5-8 cannot properly be maintained on the present prosecution record and request either a withdrawal of these rejections or a supplemental *and* non-FINAL Office Action providing the required level of detail to support these rejections properly,

With respect to article claims 1-4, the Applicants respectfully continue to maintain that Abolins relates to specific flame retardant polyphenylene ether resins in combination with rubber-modified, high impact polystyrene resins and other specific additives. Abolins' only reference to "clay" is as one of various and non-differentiated mineral fillers, col. 6, lines 35-40. The Applicants respectfully continue to maintain, however, that in this context the term "clay" is not sufficient to suggest to one of ordinary skill in the art that any clay or an organically modified clay would be useful for any particular purpose in the disclosed polymer system or provide any guidance as to how any such clay would affect the properties of the composition.

The Applicants further note that although clays are included in Abolins' laundry list of potential additives, the composition actually manufactured and tested did not include any such additives. Abolins, Tables I and II. The Applicants respectfully continue to maintain that those of ordinary skill in the art will appreciate that modifications to the composition through the addition of fillers or other additives will tend to effect the flow properties of the composition. As a result, the Applicants respectfully contend that there is no textual support to support the assumption that a substantially different composition including particular fillers will flow in a substantially similar fashion.

The Applicants respectfully contend, therefore, that the use of properties and the sizing of text pieces cannot be extrapolated to “teach” corresponding properties of materially different compositions. The Applicants respectfully maintain that the Action does not provide the required “convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

With respect to method claims 5-8, the Applicants respectfully contend that Abolins does not teach or suggest a molding composition with the claimed properties that is also capable of producing an L/t value greater than 70. The Applicants note that, as detailed in the present specification, the L/t value reflects the maximum flow of the molding composition *from the mold gate*. The Applicants further note that Abolins is *silent* as to the number and placement of the mold gates during the production of the test blanks. Absent some indication in Abolins as to the placement of the mold gates, the Applicants respectfully submit that the final dimensions of the test pieces cannot properly be extrapolated into a “teaching” of a particular mold gate placement. The Applicants also respectfully contend that speculation regarding possible mold gate placement may not be used to “cure” Abolins’ silence on this topic and thus cannot serve as a basis for “calculating” L/t ratios.

The Applicants further note that claims 5-8, as amended above, require a composition having a tensile modulus of at least 2.59 GPa (about 375,650 psi) while Abolins’ material has a reported tensile strength of only 6100 psi (0.042 GPa). The Applicants contend that one of ordinary skill in the art would appreciate that these fundamentally different properties reflect fundamentally different materials and that one

of ordinary skill would not reasonably expect the viscosity and flow characteristics of the two compositions to be similar. Absent some expectation that the materials will flow in a similar fashion, the Applicants respectfully contend that any flow or L/t information that could be derived from Abolins cannot be considered reasonably probative of the expected flow performance of the claimed composition.

The Applicants respectfully maintain, therefore, that Abolins does not include a "teaching" that would lead one of ordinary skill in the art to produce a modified molding composition having the noted properties that is also capable of achieving the claimed L/t values without undue experimentation. The Applicants, therefore, respectfully request that this rejection be withdrawn.

The Applicants also note that Takekoshi discloses a composite material comprising an onium salt-treated clay and a polyphenylene ether resin, in which the clay may be treated with a variety of organic cation species to improve the dispersion of the clay within a non-polar organic system. Col. 5, lines 35-50. The Applicants also submit that, although the cited text in the Takekoshi reference does seem to suggest the possibility that more than one cation species could be used, the Applicants respectfully note that each of the Examples includes *only a single species* and that the only property tracked was the shear modulus. Tables I and II; col. 7, line 50 to col. 8, line 38. The Applicants also respectfully note that Takekoshi does not provide any detail regarding the manner in which the sole reported parameter, shear modulus, was determined.

The Applicants respectfully contend, therefore, that no portion of Takekoshi can be fairly said to teach or suggest to one of ordinary skill the unexpected improvements achieved by the present invention for providing the reciprocal properties of high rigidity

and high flowability. Absent some suggestion or hint of the synergistic effect provided by the organic clay compositions prepared according to the present invention, the Applicants respectfully contend that one of ordinary skill in the art could not have been led to the present invention by the proposed combination of references that, at best, constitute an invitation to experiment. The Applicants, therefore, respectfully request that this rejection be withdrawn.

Based on Kosaka or Chao

Claims 1-8 also stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kosaka et al.'s U.S. Pat. No. 4,483,958 ("Kosaka") or Chao et al.'s U.S. Pat. No. 5,952,417 ("Chao") in view of Takekoshi and further in view of Abolins or Mizutani et al.'s U.S. Pat. Appl. No. US 2001/0014389 ("Mizutani"). The Applicants respectfully traverse this rejection for the reasons detailed below.

The Applicants respectfully contend that they have been denied an opportunity to consider and address the basis for these rejections until such time as an Office Action is issued that sets forth:

- (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
- (B) the difference or differences in the claim over the applied reference(s),
- (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification

as outlined in MPEP § 706.02(j). The Applicants respectfully contend, therefore, that the rejections of claims 5-8 cannot properly be maintained on the present prosecution record and request either a withdrawal of these rejections or a supplemental *and* non-FINAL Office Action providing the required level of detail to support these rejections properly,

Kosaka provides a polymer composition that, as indicated in the title, incorporates a aromatic polyether and an *inorganic* filler for improved impact resistance. Although Kosaka lists a number of apparently equally acceptable inorganic fillers including:

particulated inorganic compounds, such as titanium oxide, zinc oxide, antimony oxide, white lead, barium sulfate, magnesium hydroxide, calcium carbonate, alumina, kaolin, talc, gypsum, clay, zeolite, carbon black, diatomaceous earth, asbestos, calcium silicate, powered mica, graphite, and the like,

col. 3, lines 6-12, the Applicants respectfully maintain that Kosaka provides no teaching or suggestion regarding organic fillers, particularly organic clays modified with at least two different organic cation species as required in the present invention. Further, Kosaka provides no teaching or suggestion regarding the interaction between the inorganic fillers and the reciprocal properties of high rigidity and high flowability and does not address in any meaningful way any properties of the resulting compositions other than Izod impact strength and gloss value.

The Applicants respectfully submit that Chao, like Abolins and Kosaka, mentions clay, specifically *inorganic* clays, only in the context of a listing of various inorganic fillers and would not teach or suggest to one of ordinary skill in the art that the use of

organic clays would produce the claimed compositions or permit successful execution of the claimed methods. The Applicants also respectfully note that the property of interest in Chao was the surface structure for improved adhesion of a metal plating layer. Chao provides no information regarding properties of the resulting compositions other than Initial Peel Strengths and Final Peel Strengths, and thus cannot fairly be said to teach or suggest the inclusion of organic clays to provide the claimed combination of properties.

The Applicants respectfully note that in *In re Dembiczak*, the Federal Circuit stated that:

Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field.

In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). The Federal Circuit has also previously noted that it is improper to “use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention,” *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988), and that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. *See Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617. “Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight.” *Id.*

“When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references.” *In re Rouffet*, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) (citing *In re Geiger*, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)). The same principle applies to invalidation. “Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.” *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). Although the suggestion to combine references may flow from the nature of the problem, *see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), “[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness,” *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998). Therefore, “[w]hen determining the patentability of a claimed invention which combines two known elements, ‘the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.’” *In re Beattie*, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992) (quoting *Lindemann*, 730 F.2d at 1462, 221 USPQ at 488).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (Although the combination of the references taught every element of the claimed invention, absent motivation to combine the references in the

manner suggested, a rejection based on a *prima facie* case of obvious was held improper.). However, the level of skill in the art cannot be relied upon to provide the suggestion to combine references, *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999), and “[b]road conclusory statements regarding the teaching of multiple references, standing alone, are not ‘evidence’” sufficient to support a proposed combination, *Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617.

The Applicants respectfully submit that the proposed combinations of references cannot be supported solely by general allusions to “superior properties” absent some textual support relating the organic clays to the properties of interest in the primary references, *i.e.*, improved peel strength (Chao) or improved impact strength (Kosaka) at the expense of the molding specific considerations addressed and the physical properties achieved by the present invention. For example, although Mizutani includes a general reference to PPO as an example of a synthetic resin, only polypropylene compositions are used in the examples. Thus, Mizutani neither teaches nor suggests the necessity of attaining the reciprocal properties of high rigidity and high flowability with a composition comprising PPO, butadiene-styrene copolymer and organic clay required in the present invention.

As noted above, the Applicants respectfully contend that one of ordinary skill in the art would not expect that L/t information for one composition would be applicable to a distinctly different composition, absent data indicating that the flow characteristics were at least similar. The Applicants further contend that one of ordinary skill in the art would appreciate that flow characteristics may be greatly influenced by the ratios of the components, the effective MW and the inclusion of fillers and additives. The Applicants

respectfully submit, therefore, that one of ordinary skill, using only the teachings of the applied references, would not even have a basis for undertaking experimentation that would lead to the present invention.

Without identification of specific result-effective variables, *i.e.*, a variable which achieves a recognized result, in the properties of interest, the Applicants respectfully submit that one of ordinary skill would not have had any basis for even attempting to achieve the present invention through the proposed combinations of the applied references. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Absent the identification of such specific direction or motivation in the applied references, the Applicants respectfully maintain that the only apparent “road map” for the proposed combinations was an identification within the reference of a component of the present claims. The Applicants respectfully maintain that such cobbling together of disparate elements from a loosely connected collection of prior art references is insufficient to maintain a rejection under 35 U.S.C. § 103(a). *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988).

The Applicants, therefore, respectfully request that this rejection be withdrawn.

New Claims 9-11

The Applicants respectfully submit that support for new claims 9-11, as well as the amendments to claims 1, 5 and 7, are supported by the dielectric breakdown strength data provided in Table 1 at page 11 of the specification and the related text.


CONCLUSION

All rejections having been addressed and overcome, the Applicants respectfully contend that the present application is now in condition for Allowance and a Notice to that effect is earnestly solicited. Should the Examiner feel that further discussion on any point would be helpful in advancing the prosecution of this application, the Examiner is respectfully requested to contact the undersigned.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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